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AUTHOR Dahl, Randall W.
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ABSTRACT

Post-high school enrollment plans and specific choices of May 1980 Kentucky high school graduates were studied based on longitudinal data. The relationships between these choices and academic and personal background characteristics and future plans were analyzed. The analyses include both education-bound and noneducation-bound graduates; and provide a general basis for identifying marginal enrollment groups: education-bound graduates who do not enroll, and noneducation-bound graduates who do enroll. Patterns of changes in institutional choices are also described. Data were drawn from the initial survey of plans and first followup survey of the Kentucky Longitudinal Study, a statewide educational research project of the Kentucky Council on Higher Education. For the main follow-up sample of 1,881 individuals, results indicate that 84.4 percent of graduates had implemented their post-high school educational plans. Information is presented on: the relative shares of expected and actual enrollments for nine postsecondary institution sectors; group means of academic performance, self-rated abilities, and personal/family background variables for four groups of graduates and also for four major institutional sectors; and changes in institutional choice. With respect to college attendance in general, the results indicate that more academically able students from more affluent and better educated families are more likely to attend college immediately after high school. However, the family income of students enrolling in Kentucky private 4-year colleges is significantly lower than that of students enrolling in state 4-year colleges. Additionally, students coming to the institution from greater distances and those with weaker initial preferences for the school clearly constitute a high-risk population. (SW)

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COLLEGE ATTENDANCE AND INSTITUTIONAL CHOICE:
RESULTS FROM THE KENTUCKY LONGITUDINAL STUDY

Contributed Paper

RANDALL W. DAHL

Associate Director for Policy Studies
Kentucky Council on Higher Education

Association for Institutional Research

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D. R. Coleman, Chairman
Forum Publication
Advisory Committee

ABSTRACT

This paper focuses on the implementation of post-high school enrollment plans and specific institutional choices of May 1980 Kentucky high school graduates using data drawn from a major longitudinal study. The relationships between these choices and a variety of academic and personal background characteristics and future plans are analyzed to identify important influences on the educational choices actually made by the graduates, and to examine differences between graduates who follow-through on their post-high school educational plans and those graduates who change either their enrollment or institutional choice plans. The analyses include both education-bound and non-education-bound graduates, and provide a general basis for identifying "marginal enrollment" groups: education-bound graduates who do not enroll, and non-education-bound graduates who do enroll. Patterns of changes in institutional choices are also described.

COLLEGE ATTENDANCE AND INSTITUTIONAL CHOICE: RESULTS FROM THE KENTUCKY LONGITUDINAL STUDY

Choices made by students are critical variables in the operation of institutions and systems of higher education. The effectiveness of planning at both the institutional and system level depends in part upon a knowledge of the educational choices students actually make as well as an understanding of the factors and conditions that influence those choices. Among the numerous and wide variety of educational choices students can and do make, few are more important to higher education planning than the basic decisions to attend an institution of higher education, and to attend a particular institution of higher education. These very basic educational choices of students have been addressed in a variety of studies during the past two decades, but much remains to be learned.

BACKGROUND AND PURPOSE

This paper presents selected results and analyses from both the initial survey of plans and the follow-up phases of the "Kentucky Longitudinal Study" focusing on the implementation of post-high school educational plans and specific postsecondary institutional choices of a longitudinal panel of May 1980 graduates of Kentucky high schools. In particular, the analyses are directed toward a variety of personal and academic background characteristics of the graduates as well as selected characteristics of postsecondary institutions, and the influence of these factors on the graduates' educational plans and implementation thereof.

The two major concerns of the present study, college attendance and choice of collegiate (or postsecondary) institution, have been the subjects of

several national studies during the past two decades (Astin, 1965; Anderson, Bowman, and Tinto for the Carnegie Commission, 1972; and currently, Peng, Fetters, and Kolstad, 1981), and also have attracted research attention in other countries (for example, Walker, et al., 1979). Contemporary studies on college attendance and institutional choice plans and behavior patterns of students have examined these issues in terms of enrollment planning and the admissions process (Dembroski, 1980), institutional marketing (Maguire and Lay, 1981), race and sex differences (Thomas, 1980), and educational/occupational aspirations and socio-economic background characteristics (Sewell and Shah, 1968; Muskat, 1979) among other considerations. In addition to relatively short-term studies, data from the National Longitudinal Study of the High School Class of 1972 have been used in studies of educational plans and college attendance patterns of various student groups (for example, Clowes and Levin, 1980; Dawkins, 1980; Taylor, Stafford, and Place, 1981).

However, state-specific studies of plans and practices in college attendance and institutional choice have been relatively uncommon, with the practical consequence of a deficit in useful state-level information on these and other basic higher education planning issues. The central purpose of the continuing research project upon which this study is based is to provide this basic information for higher education planning and policy development efforts in the Commonwealth of Kentucky. The direct concerns of this study were (1) the implementation of post-high school educational plans in general - college attendance, and (2) the implementation of plans to enroll in specific postsecondary institutions - institutional choice. For planning and policy development purposes, specific concerns in college attendance include the identification of enrollment groups, the identification and differentiation of students who change their basic attendance plans and either enroll or fail to enroll unexpectedly, and

the effect of such changes on overall enrollments in the higher education system and its constituent institutional sectors. Corresponding concerns in institutional choice - which are also operationally relevant at the institutional level - include factors in the initial selection of institutions and changes from initial choices, the nature of changes in institutional choices, and enrollment effects.

METHODS AND DATA

The analyses described in this study were based on data drawn from both the initial survey of plans and first follow-up survey of the Kentucky Longitudinal Study, a major statewide educational research project of the Kentucky Council on Higher Education. This study was initiated in April 1980 with the statewide administration of a survey of educational and career plans which was completed by more than 30,000 May 1980 graduating seniors in Kentucky public and non-public high schools. In late 1980 the first annual follow-up survey of this twelve-year study was completed by some 2,600 May 1980 graduates participating in one of three follow-up samples. This study is limited to the main follow-up sample of 1,881 individuals drawn from the general population of May 1980 graduates. (A second follow-up survey was administered in December 1981-January 1982).

Criterion data from the follow-up survey included fall 1980 postsecondary education enrollment status and specific postsecondary institution if enrolled. Data from the initial survey of plans completed by all respondents shortly before graduation from high school included self-reported information on prior academic performance (grades in selected subject areas and class standing), self-assessment of ability level on a variety of school-related and career-related characteristics (e.g., academic motivation, mechanical ability, creative

writing ability, ability to work with others), personal and family background (urban/rural location, parental education, and family income), and educational aspirations (degree level). For education-bound graduates, additional information concerning the relative importance of certain factors in the graduate's selection of his or her expected postsecondary institution was also available.

Consistent with the descriptive and analytic purposes of this study, the specific analyses consisted primarily of comparisons of group means and step-wise discriminant analyses (employing SPSS Sub-Programs T-TEST and DISCRIMINANT, respectively) on the range of independent variables identified above for the following "groups" of respondents:

1. Graduates who enrolled in a postsecondary institution versus those who did not enroll;
2. Graduates who did not plan to enroll in a postsecondary institution but did in fact enroll versus those who did not plan to enroll and did not enroll;
3. Graduates who planned to enroll in a postsecondary institution but did not versus those who planned to enroll and did so;
4. Several combinations of graduates who enrolled in particular institutional sectors (e.g., Kentucky public four-year institutions versus Kentucky private four-year institutions; and,
5. Graduates who planned to enroll in a particular postsecondary institution but subsequently enrolled in some other postsecondary institution versus those who enrolled in the institution in which they planned to enroll.

In that the groups in several of the above comparisons were of severely unequal sizes, the comparisons were performed using samples of the larger groups. Two measures - foreign language grades and highest degree expected - were excluded from the discriminant analyses due to large proportions of responses necessarily classified as "missing" (i.e., the 51 percent who took no foreign language courses in high school, and the 32 percent who were uncertain as to the highest degree they expected). A complete list of

the initial survey of plans items and other measures employed as independent variables in this study is included as Appendix A.

RESULTS

The results from the first follow-up survey indicated that the vast majority of graduates actually implemented their post-high school educational plans. Overall, more than five of every six graduates - 84.4 percent - carried through on their respective plans to enroll or not enroll in some form of postsecondary education soon after graduation. Education-bound graduates (those planning to enroll) were slightly more likely to actually implement their plans than were the employment-bound graduates, 85.2 percent to 82.4 percent, although this difference in rate of implementation was not significant statistically. While the proportion of employment-bound graduates who changed their plans and actually enrolled was slightly larger than the proportion of education-bound graduates who in fact did not enroll, actual enrollments were some 8.4 percent lower than planned/expected enrollment levels due to the substantially larger size of the education-bound portion of the sample: education-bound graduates who did not enroll outnumbered the employment-bound graduates who enrolled by a margin of more than two-to-one.

Slightly more than 90 percent of the graduates who enrolled in some form of postsecondary education enrolled in one of four major institutional sectors: 55.1 percent enrolled in Kentucky public four-year institutions, 10.2 percent in Kentucky public two-year institutions, 11.4 percent in Kentucky private four-year institutions, and 10.8 percent in out-of-state four-year institutions (with a roughly five-to-four private-to-public institution ratio). The majority of the remaining 10 percent enrolled in Kentucky state vocational-technical

schools and Kentucky proprietary schools. Although comparable data are not available for all institutional sectors, for Kentucky institutions of higher education the enrollment patterns of the follow-up sample and the most relevant available comparison population - resident first-time freshmen in Kentucky colleges - were generally similar, but reflected a bias toward four-year institutions. Members of the follow-up sample more often enrolled in four-year institutions, both public and private, than the larger population of resident first-time freshmen, 69.1 percent and 14.3 percent versus 62.4 percent and 12.8 percent, respectively, and correspondingly less often enrolled in (public) two-year institutions, 16.6 percent versus 24.8 percent.

College Attendance

Overall, two of every three graduates actually enrolled in some form of postsecondary education soon after high school, representing a net reduction of 8.4 percent from "planned" enrollment levels. Of the enrolled total, 93 percent had planned to enroll while seven percent had planned not to enroll. Of the 10 percent of all graduates who were undecided as to post-high school educational plans, only one in four (24.0 percent) actually enrolled. As noted previously, the "bonus" enrollment from graduates who had planned not to enroll was offset by more than two-to-one by the 15 percent "initial attrition" of the education-bound graduates who in fact did not enroll.

The distribution of actual enrollments across major institutional sectors changed slightly from expected enrollments, but these changes were not statistically significant overall. Table 1 presents the relative shares of expected (planned) and actual enrollments for nine postsecondary institutional sectors. As might be expected, two-year institutions in general, and public community colleges and proprietary institutions in particular, were the principal

beneficiaries of changes from expected to actual enrollments; "losses" in enrollment proportions were generally shared across the range of four-year institutions, with in-state private colleges and out-of-state public colleges experiencing somewhat larger losses than other colleges.

TABLE 1
Proportional Shares of Expected and Actual
Enrollments for Nine Institutional Sectors

Institutional Sector	Enrollment Share	
	Expected	Actual
Kentucky Public 4-Year	57.7%	55.1%
Kentucky Private 4-Year	12.6	11.4
Kentucky Public 2-Year	9.6	13.2
Kentucky Private 2-Year	1.2	.9
Kentucky State Voc-Tech	3.6	3.3
Kentucky Proprietary	2.6	3.7
Out-of-State Public 4-Year	5.1	4.6
Out-of-State Private 4-Year	5.4	6.1
Out-of-State Other	2.2	1.7
	(N = 1,353)	(N = 1,255)

$$\chi^2 = 2.462 \text{ (n.s.)}$$

Disregarding differences in post-high school educational plans, the graduates who actually enrolled were clearly different from those who did not enroll. Specifically, those who enrolled had significantly "higher" or "better" group means than those who did not enroll on 20 of the 21 measures common to the two groups. The enrolled graduates had uniformly higher high school academic performance and higher self-ratings on all education- and career-related abilities except mechanical ability than the graduates who did not enroll. The enrolled graduates also had significantly higher levels of family

income and parental education, spent more time studying, and were more often from urban (or relatively more urban) areas. In short, the enrollees were consistently more education-oriented and more academic than their non-enrolled contemporaries.

The type of post-high school educational plan was the single most important variable differentiating those who enrolled from those who did not enroll. However, the discriminant analysis excluding this information was also successful in distinguishing enrollees from non-enrollees. The analysis produced a discriminant function employing 12 of the 21 available variables, with a final Wilks' Lambda of .7044 and a canonical correlation of .544. Of the 12 variables selected, the most important measures were mother's education, self-rated academic motivation and scientific ability, and mathematics grades. In the classification phase of the analysis, the prediction of enrollment status based on the discriminant function was correct for 74.3 percent of all cases, representing an improvement of 48.6 percent over the prediction accuracy of chance assignment of cases. The discriminant function was somewhat more effective in the identification of those who actually enrolled as opposed to those graduates who did not enroll.

For planning purposes, "net" or aggregated enrollment results are not as useful as disaggregated results which provide a basis for describing how the net enrollments were obtained. The net enrollments of current year high school graduates are the result of (1) initial retention of education-bound graduates who actually enroll, (2) initial attrition of education-bound graduates who change their plans and do not enroll, and (3) supplemental enrollments of employment-bound graduates who change their plans not to enroll. When actual enrollment status was examined in the context of the graduates' educational plans, considerably different results were obtained.

Among employment-bound students, the 17 percent who changed their plans and actually enrolled differed significantly from those who did not enroll on five of the 21 characteristics: group means for social studies grades, scientific ability, father's and mother's education and relative "urbanness" of hometown were significantly higher for employment-bound graduates who actually enrolled. The limited differences between the employment-bound graduates who actually enrolled and those who did not were reflected in the results of the discriminant analysis. While significant overall, the final Wilks' Lambda of .8742 and canonical correlation of .355 resulting from the analysis indicated relatively weak separation of the enrolled and non-enrolled groups. Of the seven variables selected for the discriminant function, only father's education produced an F-value in excess of 5.0. In spite of the relatively weak results, a discriminant function emphasizing mathematics and social studies grades and father's education was moderately successful in predicting the actual enrollment status of employment-bound graduates - the overall prediction accuracy of 62.8 percent represented a 25.6 percent improvement over chance levels that was consistent for both groups.

Among education-bound graduates, significant differences between those who actually enrolled and those who did not enroll were as common as such differences between enrolled and non-enrolled employment-bound graduates were rare. Specifically, on the 21 academic, ability, and background measures, the education-bound graduates who followed through on their plans and actually enrolled had significantly higher group means on 18 measures, including all of the academic performance measures and all of the personal family background measures. Unlike the employment-bound graduates, the differences between enrolled and non-enrolled education-bound graduates paralleled almost exactly the differences between enrolled and non-enrolled graduates in general -

those who did not enroll were simply less education-bound. Additionally, among eleven factors of possible importance to the graduates' choice of expected institution (the institution the education-bound graduate reported he or she was most likely to attend), the enrolled and non-enrolled groups differed significantly on four, with an emphasis on financial/cost factors - low cost and the availability of financial aid were significantly more important factors in the choice of expected institution for education-bound graduates who did not enroll than for those who did enroll (but these factors were not the most important factors for either group).

As was the case with the comparison of enrolled and non-enrolled graduates in general, the discriminant analysis employed a majority of the independent variables available to produce a function with a significant final Wilks' Lambda of .7444 and canonical correlation of .506. Although academic performance, ability, and background measures (and institutional choice factors to a lesser but not insignificant extent) were prominent in the discriminant function, high school grades - grade average and mathematics grades in particular - and parental education levels were particularly important factors. Prediction of actual enrollment status among education-bound graduates on the basis of the discriminant function was very accurate for both groups, with 73.8 percent of all cases correctly classified, representing an average improvement over chance of 46.7 percent. Prediction was slightly more accurate for the graduates who actually enrolled with a 49.6 percent improvement over chance levels.

The overall effect of changes in post-high school educational plans on actual enrollments was two-fold: a net reduction from expected/planned enrollment levels, and a slight shift in distribution among institutional sectors toward occupationally-oriented institutions. In terms of overall enrollments, unexpected enrollments from employment-bound graduates offset 43.3 percent

of the enrollment loss from education-bound graduates who did not enroll, reducing the initial attrition of expected enrollments from 14.8 percent to a net loss of 8.4 percent.

With respect to the distribution of changes from expected to actual enrollments across institutional sectors, the largest loss of enrollments - 46.8 percent of the total loss - was in Kentucky public four-year institutions, followed by Kentucky state vocational-technical institutions with 13.2 percent of the total enrollment loss. In the context of total expected enrollments, the initial attrition of education-bound graduates was much more serious for the vocational-technical schools than the public four-year institutions, as their respective relative losses from expected enrollments were 54.4 percent and 11.7 percent. The replacement enrollments from the employment-bound graduates, however, were clearly of a more vocational orientation in their selection of postsecondary institutions, thus enabling two-year colleges, vocational-technical schools, and proprietary schools to make proportionately greater recoveries of the losses from education-bound graduates who failed to follow through on their plans.

The differences in expected and actual institutional sectors, respectively, of these two groups who changed educational plans were significant. As reflected in Table 2, the employment-bound graduates who actually enrolled were twice as likely to select a vocational-technical or proprietary institution and half-again as likely to select a public or private two-year college as were the non-enrolled education-bound graduates, who in turn were more than one-and-one-half times as likely to select a Kentucky four-year college. However, as indicated in Table 1, the net effect of these changes in total enrollment distributions was not significant due to the relatively small proportions of graduates who changed enrollment plans.

TABLE 2
Proportional Shares of Marginal Enrollment
Groups for Nine Institutional Sectors

Institutional Sector	"Enrollment" Share	
	Education-Bound and Not Enrolled: Expected Sector	Employment Bound and Enrolled: Actual Sector
Kentucky Public 4-Year	46.8%	33.8%
Kentucky Private 4-Year	9.7	2.5
Kentucky Public 2-Year	8.1	18.8
Kentucky Private 2-Year	3.8	0.0
Kentucky State Voc-Tech	13.4	18.8
Kentucky Proprietary	6.4	17.5
Out-of-State Public 4-Year	2.2	1.2
Out-of-State Private 4-Year	2.7	2.5
Out-of-State Other	7.0	5.0
	(N = 203)	(N = 88)

$$\chi^2 = 41.674 \text{ (p .001)}$$

Discounting the differing institutional preferences of the two "marginal enrollment" groups, clear and consistent differences between these two groups would be valuable for planning purposes. However, the results of a direct comparison of the two groups indicated that significant differences between employment-bound graduates who enrolled and education-bound graduates who failed to enroll other than institutional preference were rare. In independent t-tests on the 21 academic, ability, and background characteristics, differences in group means achieved statistical significance only for mother's education, with the difference favoring the education-bound graduates who did not enroll. Higher means for this group on self-rated academic motivation, scientific ability, and group leadership ability approached significance.

The corresponding stepwise discriminant analysis yielded a marginally significant ($p = .06$) final Wilks' Lambda of .9363 (and canonical correlation of .252), and produced a weak discriminant function composed of five independent variables - scientific, clerical and artistic abilities, mother's education, and time spent studying in high school - of which only scientific ability achieved an F-value in excess of 3.0. Prediction of actual enrollment status with this function resulted in modest improvements over chance levels of 18 percent for the non-enrolled group and 14 percent for the enrolled group for an overall improvement in prediction accuracy of only 16 percent. The two marginal enrollment groups were in essence indistinguishable a priori.

The general order of the four basic groups of graduates progressing from employment-bound graduates who did not enroll through the two marginal enrollment groups to the education-bound graduates who did enroll is reflected in the respective group means on the 21 independent variables presented in Table 3. The thorough indistinguishability of the marginal enrollment groups is also clearly illustrated in Table 3.

TABLE 3

Group Means on Academic Performance, Self-Rated Abilities, and Personal/Family Background Variables for Four Groups of Graduates

Variable	Employment-Bound				Education-Bound			
	Not Enr	t*	Enrolled	t*	Not Enr	t*	Enrolled	
English grades	2.79		2.83		2.84	X	3.33	
Mathematics grades	2.86		2.80		2.86	X	3.07	
Science grades	2.70		2.76		2.87	X	3.22	
Social Studies grades	2.82	X	3.05		2.90	X	3.41	
Class rank**	3.38		3.27		3.13	X	2.35	
H.S. grade average	2.81		2.86		2.87	X	3.27	

Academic Motivation**	2.52		2.49		2.33	X	1.95
Mechanical**	2.81		2.68		2.70		2.74
Artistic**	3.01		2.83		2.68		2.71
Clerical**	2.64		2.76		2.67	X	2.49
Creative writing**	2.94		2.84		2.81	X	2.43
Scientific**	3.26	X	3.09		2.94	X	2.59
Mathematical**	2.65		2.65		2.59	X	2.32
Team member**	1.90		1.94		1.86	X	1.77
Group leader**	2.36		2.32		2.13		2.04
Family income	3.35		3.71		3.90	X	4.41
Father's education	2.60	X	3.02		3.10	X	4.20
Mother's education	2.51	X	2.89	X	3.21	X	3.99
Urbanness**	4.69	X	4.13		4.21	X	3.72
Hours studying	2.58		2.56		2.81	X	3.08
Quality of high school**	2.00		1.90		1.90	X	1.76

* An "X" in this column represents a statistically significant ($p < .05$) difference in group means on the specific variable for an independent t-test (two-tailed) for the two groups on either side of the notation.

**A reverse-scored variable (a "low" value represents a higher relative rating).

Institutional Choice

As noted previously, the four major institutional sectors of Kentucky public four-year institutions, Kentucky public two-year institutions, Kentucky private four-year institutions, and out-of-state four-year institutions (public and private) accounted for fully 30 percent of final enrollments. Within this group, a substantial majority of 61 percent enrolled in Kentucky public four-year institutions with the remainder enrolled in the three other institutional sectors in roughly equal shares: Kentucky public two-year colleges, 14.6 percent; Kentucky private four-year colleges, 12.6 percent; and out-of-state four-year institutions, 11.9 percent (with 5.1 percent in public institutions and 6.8 percent in private institutions). Although one of every six graduates changed his or her basic enrollment plans, resulting in a net reduction in actual enrollment levels of 8.4 percent from planned/expected levels, the

distribution of actual enrollments across institutional sectors did not differ appreciably from the distribution of planned enrollments.

Among the education-bound graduates who actually enrolled, 20.8 percent enrolled in an institution other than the institution the graduate expected to attend. Changes from expected institution to some other institution - whether within or outside a particular sector - for the four major institutional sectors ranged from a low of 12.6 percent for Kentucky public two-year institutions to a high of 25.3 percent for Kentucky private four-year colleges; in the out-of-state four-year institution sector the high change rate of 31.2 percent for public institutions was substantially moderated by a low 14.1 change rate for the private institutions to produce an overall change rate of 22.6 percent. Somewhat more than two-thirds of the changes - 70.5 percent - involved enrollment in an institutional sector other than the expected sector, while the remaining 29.5 percent represented movement among specific institutions within a particular sector (e.g., changing from one Kentucky public university to another). Changes in choice of specific institution are examined directly in a subsequent section.

For the four major institutional sectors a series of independent t-tests revealed a number of differences on the 21 academic performance, self-rated ability, and personal/family background measures with the general order (from "high" to "low" group means) of out-of-state four-year institutions, Kentucky public and Kentucky private four-year institutions, and Kentucky public two-year institutions. Group means on these measures as well as eleven institutional choice factors for these four institutional sectors, including summary results of inter-sector t-tests are reported in Table 4. For the three groups of background variables, the pattern of differences among institutional sectors is somewhat similar to the patterns for the four basic

enrollment groups reflected in Table 3. Specifically, like the education-bound graduates who followed through on their plans and actually enrolled, those who enrolled in out-of-state institutions were clearly the most academic and "educational" in background and orientation, and the middle groups - graduates enrolled in Kentucky public and private four-year institutions - were very similar to each other. Beyond the 21 measures of student characteristics, differences on the eleven factors of (possible) importance in choice of expected institution substantially expanded the otherwise limited distinctions between Kentucky public and private four-year institutions, and reinforced the fairly extensive differences among and between these and the other major institutional groups.

TABLE 4

Group Means on Academic Performance, Self-Rated Abilities,
Personal/Family Background, and Institutional Choice Variables
for Graduates Enrolled in Four Major Institutional Sectors

Variable	Ky Pub 2-Year	t*	Ky Priv 4-Year	t*	Ky Pub 4-Year	t*	Out- of-State 4-Year
English grades	3.27		3.33		3.30	X	3.59
Mathematics grades	2.91	X	3.10		3.07	X	3.41
Science grades	3.14		3.29		3.19	X	3.53
Social Studies grades	3.37		3.46		3.39	X	3.72
Class rank**	2.68	X	2.27		2.37	X	1.77
H.S. grade average	3.17		3.29		3.25	X	3.57
Academic motivation**	2.20	X	1.86		1.94	X	1.71
Mechanical**	2.95		2.80		2.69		2.65
Artistic**	2.81		2.63		2.71	X	2.53
Clerical**	2.52		2.43		2.53		2.41
Creative writing**	2.69	X	2.48		2.40	X	2.08
Scientific**	2.84	X	2.60		2.59	X	2.23
Mathematical**	2.64	X	2.26		2.30	X	2.01
Team member**	1.90		1.85		1.74		1.68
Group leader**	2.23		2.11		2.00	X	1.85

Family income	4.02		3.91	X	4.58		4.87
Father's education	3.34	X	3.82	X	4.31	X	5.51
Mother's education	3.36		3.50	X	4.10	X	5.13
Urbanness**	4.50		4.15	X	3.58	X	2.97
Hours studying	2.88	X	3.29		3.04	X	3.40
Quality of high school**	1.82		1.73		1.78	X	1.60

Close to home	2.10		2.11		1.97	X	1.63
Not expensive	2.20	X	1.82	X	2.06	X	1.62
Advanced placement	1.48		1.47		1.57		1.51
Good reputation in field	2.38	X	2.60	X	2.44	X	2.69
Can get Financial aid	2.07	X	2.43	X	2.03		1.98
Parents like it	1.99		2.09	X	1.92	X	2.17
Friends like it	1.55		1.52		1.53		1.45
Teacher recommended	1.50		1.58	X	1.42		1.36
Can get admitted	2.35		2.36	X	2.25		2.23
Social life	1.89		2.01		2.03		2.10
Far from home	1.51		1.62	X	1.79	X	2.20

* An "X" in this column represents a statistically significant ($p < .05$) difference in group means on the specific variable for an independent t-test (two-tailed) for the two groups on either side of the notation.

**A reverse-scored variable (a "low" value represents a higher relative rating).

The relative value of differences on these institutional choice factors in distinguishing among the groups of graduates enrolling in each of the four major institutional sectors was confirmed in a series of relatively successful discriminant analyses. Comparisons of Kentucky public four-year and Kentucky private four-year institutions, Kentucky private four-year and Kentucky public two-year institutions, and Kentucky public four-year and out-of-state four-year institutions (total) yielded significant overall results, and discriminant functions in which selected institutional choice factors were primary elements even though major and significant differences on the three groups of student background characteristics had been observed in the series of independent t-tests. Results for the comparison of Kentucky public four-year institutions and Kentucky public two-year institutions were also significant but with an emphasis on differences on measures of student background characteristics.

Summary discriminant analysis results for four selected comparisons of major institutional sectors and an overall analysis of the four sectors are presented in Table 5.

TABLE 5

Summary of Step-wise Discriminant Analysis Results for Comparisons of Selected Major Institutional Sectors and an Overall Comparison of Four Sectors

Comparison	Wilks' Lambda	Canon. Corr.	Improve. in Class. Accuracy	Leading Variables*
Ky Public 4-Year Ky Private 4-Year	.7019	.546	+58.4% +39.0 +49.1%	Fin. aid availability Inst. not expensive Inst. far from home Urbanness of hometown Inst. rep. in field
Ky Public 4-Year Ky Public 2-Year	.7377	.512	+42.8% +44.2 +43.5%	Urbanness of hometown Mother's education Mathematical ability Academic motivation Clerical ability
Ky Private 4-Year Ky Public 2-Year	.7840	.465	+32.5% +49.7 +41.8%	Inst. not expensive Fin. aid availability Mathematical ability Father's education High school grade avg.
Ky Public 4-Year Out-of-State 4-Year	.6308	.608	+52.6% +48.6 +50.9%	Inst. not expensive Parents like inst. Mathematics grades Inst. close to home Inst. far from home

Ky Public 2-Year Ky Private 4-Year Ky Public 4-Year Out-of-State 4-Year	.3377 (final)	.776 (first)	+38.4% +10.1 +43.1 +80.2 +42.3%	Prox. of expected inst. Urbanness of hometown Mother's education Rel. pref. expected inst. Mathematical ability

* Variables making the most substantial contribution to the discriminant function based on values of standardized discriminant function coefficients; proximity of expected institution and relative preference for expected institution were employed only in the four-group analysis.

Changes in Institutional Choice

Among the education-bound graduates who actually enrolled in a post-secondary institution, one in five - 20.8 percent - changed his or her specific enrollment plans and enrolled in an institution other than the institution he or she expected to attend. More than two-thirds of the graduates who changed from the expected institution actually enrolled in an institutional sector different from the sector of the expected institution - for example, a change from a Kentucky public four-year institution to a Kentucky private two-year institution.

Changes in institutional choice varied both by general institutional level (i.e., four-year college, two-year college, and other institutions), and by type of institutional control (i.e., public or private). With respect to general institutional level, most of those who changed from their expected institution, 59.0 percent, enrolled in another institution at the same level; the remaining 41 percent who changed levels were three times as likely to change to a "lower" level institution than to a "higher" level institution, 30.8 percent to 10.2 percent. Similarly, with respect to the type of institutional control, slightly more than three-fifths of those who changed from the expected institution, 61.5 percent, enrolled in an institution of the same type of control, while the remaining 38.5 percent who changed across type of control sectors were divided approximately five-to-four in favor of a change from public to private. However, in the context of total sector enrollment shares, the net gain for private institutions in the exchange of students across control sectors conceals the fact that the change from private sector to public sector represented 67.2 percent of the total change among students who expected to enroll in private institutions, a "defection ratio" of two-to-one. By contrast, only 28.3 percent of the students expecting to enroll in a public institution who changed actually enrolled in a private institution for

a corresponding "defection ratio" of less than one-to-three. Overall, four specific types of changes accounted for more than two-thirds (68.8 percent) of all changes: (1) from public four-year to public four-year, 30.8 percent; (2) from public four-year to public two-year, 16.7 percent; (3) from public four-year to private four-year, 11.5 percent; and, (4) from private four-year to public four-year, 9.8 percent.

The effect of changes in institutional choice on enrollments also varied both across and within institutional sectors. Aggregate results including sector-specific "holding power" and net enrollment effects are presented in Table 6. Sector-specific "holding power" is the proportion of students who expected/planned to enroll in an institution in that sector who actually did enroll in an institution in that sector (but not necessarily the specific institution expected). For the most part, the holding power of the various sectors ranged near the overall rate of 85.3 percent, or more than five out of six students. However, among the major institutional sectors, the public institutions sub-group of the out-of-state four-year institutional sector had a substantially lower holding power - 68.4 percent - than any other group with appreciable enrollments. In terms of net enrollments in the major sectors, the most significant losses were also associated with this sub-group while the most significant gains were realized by the Kentucky public community colleges. (The proprietary schools sector realized a significant net gain of 45 percent; a relatively small "vocational training" sector composed of state vocational-technical institutions and proprietary schools realized a net gain of more than 25 percent.)

TABLE 6

Summary of Enrollment Holding Power and Net Enrollment Effects of
Enrolled Education-Bound Graduates for Institutional Sectors

Institutional Sector	Expected Enrollment Proportion*	Actual Proportion Enrolled	Holding Power	Total Enrollment Proportion*	Net Enrollment Effect
Ky Public 4-Year	59.6%	52.9%	88.8%	56.8%	-4.7%
Ky Private 4-Year	13.0	10.1	77.7	12.4	-4.6
Ky Public 2-Year	9.7	8.7	89.7	12.7	+30.9
Ky Private 2-Year	.7	.6	85.7	.9	+28.6
Ky State Voc-Tech	2.2	2.0	90.9	2.6	+18.2
Ky Proprietary	1.8	1.4	77.8	2.6	+44.4
O-S Public 4-Year	5.7	3.9	68.4	4.9	-14.0
O-S Private 4-Year	5.7	4.9	86.0	6.0	+5.3
O-S Other	1.5	.7	46.7	1.1	-26.7
(85.3%)					(0)

* $\chi^2 = 1.7637$ (n.s.)

The principal movements among institutional sectors "hidden" in the net enrollments reported in Table 6 are summarized in Table 7. As was the case for the differences in general institutional preference between the education-bound graduates who did not enroll and the employment-bound graduates who did enroll (summarized in Table 2), the final/actual institutional preferences of the education-bound graduates who changed from their respective expected institutions were of a significantly more occupational/vocational character. While there was considerable movement among and between in-state and out-of-state four-year institutions, the primary drift was toward two-year post-secondary institutions in general, and the public two-year colleges - the University of Kentucky Community College System - in particular.

TABLE 7

Summary of Enrollment Gains and Losses from Changes from
Expected Institution for Institutional Sectors

Institutional Sector	Holding Power	Loss (N) Gain (N)	Primary Sources of Loss/Gain Percentage Shares	
Ky Public 4-Year (56.84)*	88.8%	-75 +44	49.3 Ky Pub 2-Yr 36.4 Ky Priv 4-Yr	26.7 Ky Priv 4-Yr 31.8 O-S Pub 4-Yr
Ky Private 4-Year (12.42)	77.7	-32 +26	50.0 Ky Pub 4-Yr 76.9 Ky Pub 4-Yr	12.5 Ky Pub 2-Yr 15.4 Ky Pub 2-Yr
Ky Public 2-Year (12.69)	89.7	-2 +45	33.3 Ky Pub 4-Yr 82.2 Ky Pub 4-Yr	33.3 Ky Priv 4-Yr 8.9 Ky Priv 4-Yr
Ky Private 2-Year (.89)	85.7	-1 +3	100.0 Ky Pub 4-Yr 66.7 Ky Priv 4-Yr	
Ky State Voc Tech (2.59)	90.9	-3 +7	33.3 Ky Pub 2-Yr 42.9 Ky Pub 4-Yr	33.3 Ky Proprietary 42.9 Ky Priv 4-Yr
Ky Proprietary (2.59)	77.8	-4 +13	50.0 Ky Pub 4-Yr 30.8 Ky Pub 4-Yr	30.8 Ky Priv 4-Yr
O-S Public 4-Year (4.92)	68.4	-20 +11	70.0 Ky Pub 4-Yr 45.5 Ky Pub 4-Yr	27.3 O-S Priv 4-Yr
O-S Private 4-Year (5.99)	86.0	-9 +12	44.4 Ky Pub 4-Yr 33.3 Ky Pub 4-Yr	33.3 O-S Pub 4-Yr 33.3 Ky Priv 4-Yr
O-State Other (1.07)	46.7	-9 +4	33.3 Ky Pub 4-Yr 50.0 Ky Pub 4-Yr	

* Percentage share of total actual enrollment.

Finally, there was also considerable variation in change from expected institution within institutional sectors. Among the eight Kentucky public four-year institutions, which accounted for a full majority of both expected and actual enrollments, the institutional holding power - or initial retention rate - was 80.5 percent overall and ranged from a high of 93.8 percent at Northern Kentucky University to a low of 77.2 percent at the University of

Kentucky (Kentucky State University's holding power was 37.5 percent, but KSU accounted for only 1.2 percent of the expected enrollment in this sector). Not surprisingly, the institutions in more isolated areas and those in urban areas (with correspondingly concentrated and primarily commuting market areas) had the highest holding power on expected enrollments, and holding power generally decreased as the market area expanded and geographical accessibility improved (the University of Kentucky, centrally located with a specific and unique statewide service mission, in fact had the lowest institutional holding power in this sector).

Among Kentucky private four-year colleges, with holding power of 74.7 percent overall, those with stronger religious identification/orientation generally had enrollment holding power rates from 60 to 70 percent, while the generally non-sectarian/independent institutions had holding power rates slightly above 80 percent. The holding power of Kentucky public two-year institutions - the 13 units of the University of Kentucky Community College System - was the highest of the major institutional sectors at 87.4 percent, and was relatively stable across the individual units (with expected enrollments of ten or more students). As noted previously, the enrollment holding power/initial retention in the fourth major institutional sector, out-of-state four-year institutions, was 77.3 percent overall (virtually identical to the University of Kentucky rate), but was sharply lower for out-of-state public institutions than for out-of-state private institutions, 68.4 percent versus 86.0 percent.

In a comparison of the enrolled graduates who changed from their expected institutions and those who did not change, nearly all of the significant differences between the two groups were of an academic character. Specifically, the students who actually enrolled in their expected institution had significantly higher group means on all six measures of academic performance, self-

ratings on academic motivation and mathematical ability, and time spent studying in high school. Among the eleven institutional choice factors, the two groups differed significantly on the relative importance of proximity of the expected institution, with those who did not change placing greater importance on this factor.

Also, there was a significant direct relationship between proximity of the expected institution and change, and a significant indirect relationship between change and relative preference for the expected - whether the expected institution was the graduate's first choice, second choice, or neither the first nor second choice. With regard to the proximity of the graduate's expected institution to his or her hometown, the expected institution of those who changed was significantly farther away from the hometown than for those who did not change from the expected institution, approximately 112 miles and 65 miles away, respectively. Differences between changers and non-changers on relative preference for the expected institution were clear and substantial: when the expected institution was also the first choice institution only 15 percent changed, and when it was the second choice 22 percent changed; however, when the expected institution was not the first or second choice, more than three-fourths of the graduates - 76.9 percent - changed.

In combination with self-rated academic motivation, these latter measures were prominent in a corresponding discriminant analysis comparing graduates who changed specific expected institution with those who did not change. The analysis produced a significant final Wilks' Lambda of .7859 with a canonical correlation of .463, and a ten-variable discriminant function emphasizing relative preference of expected institution, and to a lesser extent, academic motivation, proximity of expected institution, and science grades. In classifying those who changed and those who did not, the discriminant function resulted

in a 35.2 percent improvement over chance. The overall improvement in prediction accuracy, however, resulted from an improvement in prediction accuracy of 52.3 percent for the non-changers, but only 19.2 percent for those who changed from expected institution.

CONCLUSIONS

In recognition of the primarily exploratory nature of this study, specific conclusions are properly classified as tentative (but not necessarily tenuous), and in the context of any practical application, should be viewed as "intermediate goods" pending further clarification and refinement. Nevertheless, findings from the first year of the Kentucky Longitudinal Study regarding college attendance and institutional choice appear to support some conclusions of direct and current relevance to statewide and institutional planning in these areas, as well as some interesting suggestions for further inquiry.

With respect to college attendance in general, the results appear to support the conventional wisdom - the more academically able students from more affluent and better educated families are more likely to attend college immediately after high school. However, the fact that the family income of students enrolling in Kentucky private four-year colleges is significantly lower than that of students enrolling in Kentucky public four-year colleges but is not significantly different from family income levels of students enrolling in Kentucky public two-year colleges is of more than passing interest. What is it about the Kentucky private colleges that encourages students who are comparatively less able economically to attend such institutions to do so? Do current financial assistance programs serve to eliminate the effective differences in family income observed?

Of broader practical value, the findings strongly suggest the existence

of a single marginal enrollment population (or pool), including education-bound graduates who do not enroll and employment-bound graduates who do enroll as fundamentally indistinguishable sub-populations. However, the results do provide a basis for identifying this combined group with routine admissions application information, thus allowing institutions to focus "recruiting" efforts on a population segment especially susceptible to change of enrollment plans. The following characteristics define particularly heavy concentrations of the "marginal enrollment pool": (1) high school grade average of 2.50 to 3.25; (2) high school class rank between the 50th and 75th percentiles; (3) family income of \$14,000 to \$22,000; and (4) parental education - father or mother, or both - of high school graduation through some college. The results also strongly suggest that graduates who are undecided about their educational plans are not good enrollment prospects; the actual enrollment rate for such students - a group including 10 percent of all graduates - was only 24 percent.

With respect to the choice of institution and changes from the initial choice, the drift toward the more occupational/vocational two-year institutions - community colleges and vocational-technical and proprietary schools - among late-deciders and those changing from the expected institution is clear. Whether this movement can - or should - be changed is a question requiring further study; it is quite possible that this movement is primarily a reflection of the graduates' efforts to accommodate expectations and aspirations with reality.

Of greater practical importance for planning at the institutional level, the results of this study provide clear and strong evidence of the central influence of institutional proximity and relative preference in students' decisions to enroll - or perhaps more importantly, not enroll - in the expected institution. In terms of minimizing initial attrition, the loss of potential or probable students

prior to initial enrollment, students coming to the institution from greater distances and those with weaker initial preferences for the institution clearly constitute a high risk population. For such students, some form of "continuing recruitment" designed to cultivate and strengthen the student's initial commitment to the institution might prove useful.

Additional longitudinal data will provide substantial further clarification of the initial findings presented in this study. In particular, information regarding differences in enrollment persistence and transfer patterns among the graduates who enrolled, and the extent and nature of delayed/deferred enrollment among those who did not enroll initially will add a valuable dimension to the findings of the current study of college attendance and institutional choice among Kentucky high school graduates.

APPENDIX A

Listing of Initial Survey of Plans Items
Employed as Independent VariablesA. Academic Background

1. Grade average in English (0-4)*
2. Grade average in mathematics (0-4)
3. Grade average in sciences (0-4)
4. Grade average in social studies (0-4)
5. Compared with other students in your high school class, how would you describe your achievement since beginning the ninth grade? (Class rank) (1-6)**
6. High school grade average (computed; academic subjects) (0-4)

B. Self-Ratings on School- and Career-Related Characteristics

How do you rate yourself in comparison with your classmates in the following school-related and career-related characteristics? (1-4)

1. Academic motivation**
2. Mechanical ability**
3. Artistic ability**
4. Clerical ability**
5. Creative writing ability**
6. Scientific ability**
7. Mathematical ability**
8. Ability to get along with others (team member)**
9. Ability to work with others (leadership)**

C. Personal and Family Background, etc.

1. What is the approximate total income of your parents or legal guardian before taxes this year? (1-8)
2. What is the highest level of education completed by your father or male guardian? (1-8)
3. What is the highest level of education completed by your mother or female guardian? (1-8)
4. How would you describe where you currently live? (Urban-rural) (1-7)**
5. On the average, how many hours per week did you spend studying and doing homework during your high school years? (1-6)
6. How would you rate the overall quality of your educational program in high school? (1-4)**

* Range of survey response values.

** Reverse-scored variables - low scores reflect high ratings (and more urbanness).

D. Items for Education-Bound Graduates Only

How important is each of the following factors in your selecting the postsecondary institution you are most likely to attend? (1-3)

1. The school is close to home
2. It is not expensive
3. It offers an advanced placement and/or credit by examination program which will permit me to skip some courses
4. It has a good reputation in my field of interest
5. I believe I can get financial aid there
6. My parents like it
7. My friends like it
8. My counselor or teacher suggested it
9. I believe I can get admitted there
10. It offers a good social life
11. It is far enough from home so that I feel I will be on my own

E. New Measures Constructed from Survey Responses (Education-Bound Graduates Only)

1. Proximity of expected institution to hometown (1-8)
2. Relative preference for expected institution (1-3)

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